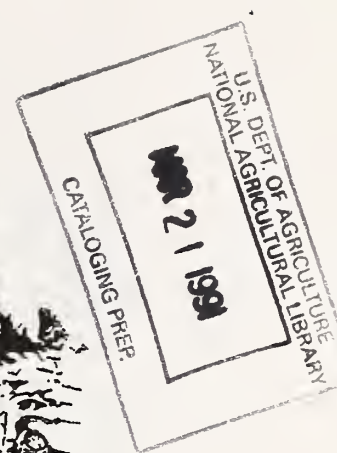


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Habitat management for

Squirrels



In Kansas

The fox squirrel *Sciurus niger* is one of the most common mammals living in our Kansas woodlands. The fox squirrels range in the United States is bordered on the east by the Atlantic coast and on the west by Texas, Oklahoma, Kansas, Nebraska, and the Dakotas. The gray squirrel *Sciurus carolinensis* lives primarily in the oak-hickory woodlands of the United States and in eastern Kansas their range and numbers are small. Basically, fox and gray squirrels are much alike in their habits and life needs. This management guide will address the much more abundant fox squirrel.

The fox squirrel must have trees, but their need for them is tempered by their love for open country. They prefer open timber or narrow strips of woodland bordering streams that let in sunlight and breeze. They will travel up to a half mile over open prairie or across cropland to get to an isolated black walnut or oak tree. The planting of windbreaks, hedgerows, and crops (primarily corn) has extended the fox squirrel's range in Kansas since presettlement.

Fox squirrels, often called red squirrels or bushytails, use their tails for many things. It helps them as a balancing mechanism and serves as a shade on sunny days. In cold weather it is used as a muff, and it can be flicked to signal an alarm.

Squirrels are equipped with very good eyesight which can detect the slightest movements through heavy forest canopies. Their senses of hearing and smell are also very good. The continually growing teeth and jaws are tremendously strong and durable as demonstrated by their ability to crack and eat black walnut and hickory nuts. Squirrels are very sure footed as they scramble through the tree tops and seldom fall. They are highly capable animals that are well adapted to their woodland habitat.

Fox squirrels do not set up rigid territories like some animals do, and they rarely quarrel over food or have serious brawls during the mating season. They love to frolic and chase each other and often tease birds and other animals.

A tree squirrel cannot hibernate. During particularly cold weather, they may retire for a few days and sleep out the storm, but they don't fall into a winter stupor. To survive they must do two things: store a generous supply of autumn fat and stay in good condition by using the food they have stored for winter.

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Two distinct types of homes used by squirrels include long-term tree dens in hollow trunks or limbs and temporary leaf nests. Leaf nests are used as escape cover throughout the year and also for nurseries. They are composed of twigs and leaves cut from the tree in which they are built.

No leaf nest can match the security of a good tree den. Most dens are started by woodpeckers or tree rot and are only modified by squirrels. Squirrel dens are used for reproduction, shelter, and escape.

Mature females usually raise two families each year. The first is usually born in March or April and the second in July or August. The female must be in good physical condition and have adequate food before she will breed. The average number of young is three and they are born after about six weeks of pregnancy. Newborn fox squirrels are pinkish-purple and hairless except for their whiskers. They have no teeth, and their eyes are closed.

By the end of the first week the little squirrels have doubled their weight to a little over an ounce. They have also grown about an inch and now measure about $5\frac{1}{2}$ inches. At two weeks of age, they begin to get their body hair and at three weeks, they start getting their teeth.

By the fourth week their bodies are entirely covered by hair. Five weeks after birth their eyes are fully open, and they weigh 3 to 4 ounces and average about 10 inches long. Weaning begins during the seventh week and goes on for 3 to 5 weeks.

A squirrel never brings food to her nestlings. When they are about 7 weeks old, they wander out of the den and wobble through the trees to eat young leaves and buds. At about 10 weeks of age they are eating nuts and acorns.

Raising the young is the female's job. The male probably shares the nest during mating season and while the female is carrying her young, but he is driven out when the litter is born. The female nurses her young throughout their long infancy. She is fiercely protective of her young and keeps all other squirrels out of her nest. Because of such care, survival of young squirrels is amazingly high.

Even after young squirrels leave the nest, their mothers may watch over them by giving warning signals when danger approaches. Thus squirrel families are raised with the youngsters often moving several miles before they settle down to their adult roles. Occasionally, families reunite at the den to spend the winter together.

Of all the common game animals, squirrels are among the least-plagued by serious parasites and diseases. If adequate good quality food is available, squirrels normally stay in good health. The fox squirrel also has few serious predators. Hawks, owls, and coyotes are probably the main predators in Kansas.

The home range is rarely more than a couple of acres around the den tree. Fox squirrels often spend their entire year in the vicinity of a favorite tree.

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They are most active during a normal day when they are feeding. This usually occurs in the early morning and in the evening. Between feeding times they usually relax and often take a nap. During the nut-gathering season, squirrels often work all day long storing food for the winter. Most of a squirrel's daily activities center around getting food and finding safety. When these basic duties are accomplished, they usually sleep, scratch fleas, or just relax stretched out on a limb.

HABITAT NEEDS

The three common elements of good fox squirrel habitat are:

1. A good variety of food.
2. An abundance of food.
3. An adequate number of denning sites.

If any one of these elements is lacking or in short supply, then squirrel populations will be either drastically reduced or absent.

Food--The basic part of a squirrel's diet is nuts and acorns. They will eat many other things, but a nut tree is the normal squirrel's staff of life. Their favorites are hickory nuts, pecans, black walnuts, and white oak acorns. Nut harvest often begins when the nuts are just starting to form. They are harvested from this stage on to when they mature in the fall. Other foods eaten when nuts are not available are hackberry and wild cherry fruits, maple and elm seeds, buds and twigs, flowers and roots of plants, grubs and insects, osageorange seeds and bark, and grains such as corn and milo. Squirrels are especially fond of corn when it is "in the milk" stage. Quantities of corn may also be taken from unpicked winter fields. Squirrels may also eat mushrooms and the seeds of shrubs and vines. In western Kansas, where nut trees are scarce, they often eat hackberry galls, cedar berries, pods of honey locust, bark and fruit of Russian olive, and even the seeds of wild gourds. They often use a favorite stump or a limb as a perch to eat on. This accounts for the piles of discarded shells and waste around a favored eating perch.

Water--Squirrels drink freely from streams and other natural waters, but they may exist in areas where water in the free state is practically absent. Much of the water they require is obtained from succulent plant materials. During extreme droughts, squirrels undoubtedly will need water that they cannot get from succulent foods so water should be provided.

Cover--There must be trees before there can be squirrels. Not only must there be trees but there should be several kinds of trees. They should be of all age groups from saplings to mature den trees, as well as different kinds. Den trees are very important because they provide a secure home during adverse weather.

HABITAT MANAGEMENT SUGGESTIONS

A woodland managed for sustained tree crop yields, where selective harvesting is practiced, is best for squirrels. Care must be taken in this type of management to leave 2 to 4 den trees per acre. In selective harvesting only the trees that are ready for harvest are cut. They are usually scattered through the woodland inter-mixed with medium and small trees creating an uneven age stand. Many species of trees should be present for the greatest variety of wildlife foods. Selective harvesting also creates small openings in the woodland canopy and promotes a good ground cover of shrubs, grasses, and forbs. Large blocks of woodland are not as good as long, narrow strips. Hedgerows, windbreaks, and wooded strips along streams create an edge effect that fox squirrels prefer for year-round needs. A crop such as corn may be growing on the adjacent cropland which would add to the value of the area. Sound woodland management is usually considered sound squirrel management.

The following are some things that should be done on woodlands for squirrel management.

1. Woodland harvest - Selective harvest with wildlife as an objective, will benefit squirrels as well as future harvest activities.
2. Controlled grazing - Overgrazing eliminates ground cover, reduces tree reproduction, and can kill existing trees. Woodlands should be fenced or managed so grazing use can be controlled. Flash grazing, on a very limited basis, can be used as a management tool to open up dense stands.
3. Do not burn - Woodlands should not be burned in Kansas. Burning will not benefit woodland or the wildlife using it.
4. Retain den trees - Den trees provide many permanent homes and cover for squirrels, cavity nesting birds, and other animals. Two to four den trees per acre should be a goal in woodlands managed for wildlife.
5. Maintain woodlands, windbreaks and hedgerows - Existing woodlands, windbreaks, and hedgerows should be maintained and additional plantings should be made where needed.

Fox squirrel numbers in Kansas have probably increased since presettlement times. They are often referred to as "farmland wildlife," meaning they are highly compatible with man's activities. There may be, however, some fallacy in this if man continues to clear woodlands.

The Soil Conservation Service, local conservation districts, the Kansas Fish and Game Commission, and the Kansas State University Cooperative Extension Service offer competent guidance on soil, water, plant, and wildlife habitat management.